B1 cont.

displaced laterally relative to said another doped region such that at least said one doped region does not overlap with said another doped region;

a first, second and third photosensitive regions formed in said respective first, second and third doped regions for receiving first, second and third photocharges corresponding to a particular color wavelength; and

a first, second and third floating diffusion regions of a second conductivity type formed in said respective first, second and third doped regions for receiving said respective photocharges transferred from said respective first, second and third photosensitive regions.

B2

38. (Amended) A color pixel cell for an imaging device, said color pixel cell comprising:

a red pixel cell, a blue pixel cell and a green pixel cell, each comprising a respective first, second and third multiple graded wells of a first conductivity type formed in a substrate, said first, second and third multiple graded wells having substantially different depths in said substrate and being displaced laterally such that said graded wells do not overlap;

a photosensor formed in each one of said first, second and third multiple graded wells for sensing respective red, blue and green color wavelengths;

a reset transistor having a gate stack formed in each one of said first, second and third multiple graded wells;

B2 cont.

a floating diffusion region of a second conductivity type formed in each one of said first, second and third multiple graded wells between said photosensor and said reset transistor for receiving charges from said photosensor, said reset transistor operating to periodically reset a charge level of said floating diffusion region; and

an output transistor having a gate electrically connected to said floating diffusion region.

B3

54. (Amended) A CMOS imager comprising:

a substrate having a first, second and third multiple graded wells of a first conductivity type, said first, second and third multiple graded wells having substantially different depths in said substrate and being displaced laterally such that said multiple graded wells do not overlap, and wherein each of said first, second and third multiple graded wells has a respective photosensor formed therein for sensing respective red, blue and green color wavelengths;

an array of pixel sensor cells formed in said first, second and third multiple graded wells; and

a circuit electrically connected to receive and process output signals from said array.

B4

69. (Amended) An imager comprising:

an array of color pixel cells formed in a substrate having at least one deep retrograde well of a first conductivity type, at least one shallow well of said first

B4 cont.

conductivity type, and at least one shallow retrograde well of said first conductivity type, wherein each pixel sensor cell has a photosensor for sensing a respective particular color wavelength, and wherein said deep retrograde well, said shallow well and said shallow retrograde well have substantially different depths and are displaced laterally such that said wells do not overlap;

a circuit formed in the substrate and electrically connected to the array for receiving and processing signals representing an image output by the array and for providing output data representing the image; and

a processor for receiving and processing data representing the image.

B5

113. (Amended) A color pixel cell for an imaging device, said color pixel cell comprising:

at least two doped regions of a first conductivity type formed in a substrate, said at least two doped regions having substantially different depths in said substrate and being displaced laterally such that said doped regions do not overlap;

at least two photosensitive regions respectively formed in said at least two doped regions for respectively receiving photocharges corresponding to a particular color wavelength; and

at least two floating diffusion regions of a second conductivity type formed in said respective at least two doped regions for receiving said respective photocharges transferred from said respective at least two photosensitive regions.

124. (Amended) A color imaging sensor comprising:

a substrate having a first defined region for sensing a first color wavelength component;

a second defined region for sensing a second color wavelength component; and

a third defined region for sensing a third color wavelength component, wherein the lower boundaries of each of said first, second and third defined regions are located at respective different depths from a surface of said substrate and are displaced laterally such that said defined regions do not overlap.

Please add the following new claims:

141. (New) The color pixel cell of claim 1, wherein at least two of said first second, and third doped regions are separated by an isolation region.

142. (New) The color pixel of claim 1, wherein said first, second, and third doped regions are each separated by an isolation region.

143. (New) The color pixel cell of claim 38, wherein at least two of said first second, and third multiple graded wells are separated by an isolation region.

144. (New) The color pixel cell of claim 38, wherein said first second, and third multiple graded wells are each separated by an isolation region.

145. (New) The CMOS imager of claim 54, wherein at least two of said first second, and third multiple graded wells are separated by an isolation region.

B7 cont.

146. (New) The CMOS imager of claim 54, wherein said first second, and third multiple graded wells are each separated by an isolation region.

147. (New) The imager of claim 69, wherein at least two of said deep retrograde well, shallow well, and shallow retrograde well are separated by an isolation region.

148. (New) The imager of claim 69, wherein said deep retrograde well, shallow well, and shallow retrograde well are each separated by an isolation region.

149. (New) The color pixel cell of claim 113, wherein at least two of said first second, and third doped regions are separated by an isolation region.

150. (New) The color pixel cell of claim 113, wherein said first, second, and third doped regions are each separated by an isolation region.

151. (New) The color imaging sensor of claim 124, wherein at least two of said first, second, and third defined regions are separated by an isolation region.

152. (New) The color imaging sensor of claim 124, wherein said first, second, and third defined regions are each separated by an isolation region.